



## **Study of secondary particulate matter in the atmosphere via stable carbon isotope measurements**

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Particulate Matter (PM) pollution has recently received much interest from the scientific community because of its significant impact on human health as well as climate change and local visibility. Despite the well-known importance of PM, its formation processes are not well understood. This is especially the case for secondary organic PM.

One of the main uncertainties stems from the extrapolation from laboratory studies to the real atmosphere. It has been suggested that combining measurements of concentrations of particle phase products and gas-phase precursor with studies of their isotope ratios will provide additional, quantitative insight into the formation processes for secondary PM in the atmosphere.

In this presentation a method for concentration and stable carbon isotope composition measurements of methylnitrophenols in atmospheric PM is presented. It has been found in numerous laboratory studies that these compounds are photooxidation products of toluene in PM. During the BAQS field study (June-July 2007, Southwestern Ontario, Canada), stable carbon isotope compositions and concentrations of gas-phase toluene and several methylnitrophenols in PM were measured. The results of these measurements will be presented and discussed.